

# Feiqin Xie, Ph. D.

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Satellite remote sensing of the atmosphere, GNSS radio occultation technique, boundary layer, tropopause dynamics and diurnal variations.

## EDUCATION

8/2001 – 5/2006 University of Arizona, Tucson, Arizona

- Ph.D. in Atmospheric Sciences
- Minor: Remote Sensing and Spatial Analysis

9/1998 – 7/2001 Peking University, Beijing, China

- M. S. in Atmospheric Physics and Atmospheric Environment

9/1994 – 7/1998 Lanzhou University, Lanzhou, Gansu, China

- B. S. in Atmospheric Physics and Atmospheric Environment with honor

## PROFESSIONAL EXPERIENCE

10/2009 – present Assistant Researcher, Joint Institute for Regional Earth System Science and Engineering, University of California, Los Angeles, CA

- Multi-sensor for atmospheric boundary layer study (COSMIC/CALIPSO/CloudSat/MISR)
- Global diurnal cycle climatology from satellite observation and NWP model analysis
- Airborne radio occultation measurements and their impact on hurricane studies
- Improve the data assimilation of the GPS radio occultation (RO) data in the lower troposphere (Co-investigator for a NOAA grant).

10/2008 – 09/2009 Caltech Postdoctoral Scholar, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

- Investigate the inter-annual/seasonal/diurnal temperature and refractivity variations of the atmosphere from radio occultation measurements.
- Analyze tropopause climatology from GPS occultation observations.
- Combine the GPS RO measurements with MISR cloud height measurements for planetary boundary layer study.

5/2006 – 10/2008 Postdoctoral Fellow, Department of Earth and Atmospheric Sciences, Purdue University, West Lafayette, IN

- Conducted research in the state-of-the-art airborne GPS remote sensing system; developed the retrieval scheme and formulate the test flight plans for field campaigns.
- Involved in NSF funded GISMOS (GNSS Instrument System for Multistatic and Occultation Sensing) development project.

8/2001 – 5/2006 Ph.D. student and research assistant, Department of Atmospheric Sciences, University of Arizona, Tucson, AZ

- Developed an End-to-end simulation system to study space-borne GPS RO measurements in the neutral atmosphere.
- Proposed a novel approach to correct the GPS occultation retrieval bias in the lower troposphere due to the so-call super-refraction, which is often observed at the height of planetary boundary layer.

9/2004 – 12/2005      Teaching assistant, Radiative Transfer & Introduction to Weather and Climate, University of Arizona, Tucson, AZ

9/1998 – 6/2001      Master student and research assistant, Center for Environmental Sciences, Peking University, Beijing, China.

- Conducted large-eddy-simulation to investigate the dense gas dispersion behavior in the unstable surface layer.
- Investigated the total column ozone spatial and temporal variations over Asia and Europe.
- Involved in the Environmental Planning Project for downtown area of Yuxi city in Yuanan Province, China.

#### **PEER-REVIEWED PUBLICATIONS**

1. **Xie, F.**, D. L. Wu, C. O. Ao, E. R. Kursinski, A. Mannucci and S. Syndergaard, 2010: Super-refraction effects on GPS radio occultation refractivity in marine boundary layers, *Geophys. Res. Lett.*, 37, doi:10.1029/2010GL043299.
2. **Xie, F.**, D. L. Wu, C. O. Ao, A. Mannucci, 2010: Atmospheric diurnal variations observed from GPS radio occultation soundings, *Atmospheric Chemistry and Physics*, In review.
3. Muradyan, P., J. S. Haase, **Xie, F.**, J. L. Garrison, T. Lulich, and J. Voo, 2009: GPS/INS navigation precision and its effect on airborne radio occultation retrieval accuracy, *GPS Solutions*, In review.
4. **Xie, F.**, J. S. Haase, S. Syndergaard, 2008: Profiling the Atmosphere Using the Airborne GPS Radio Occultation Technique: A Sensitivity Study, *IEEE Transactions on Geoscience and Remote Sensing*, DOI:10.1109/TGRS.2008.2004713.
5. **Xie, F.**, S. Syndergaard, E. R. Kursinski and B. M. Herman, 2006: An Approach for Retrieving Marine Boundary Layer Refractivity from GPS Occultation Data in the Presence of Super-refraction, *J. Atmos. Oceanic Technol.*, 23, 1629-1644.
6. Cai, X., **F. Xie**, and J. Chen, 2002: Large-eddy Simulation for Unstable Surface Layers, *Acta Scientiarum Naturalium Universitatis Pekinensis* (in Chinese with English Abstract), 38 (5), 698-704.
7. Li, Y., X. Cai, **F. Xie**, 2002: Recent Variations of Total Ozone Over East Asia, *Environmental Science* (in Chinese with English Abstract), 23(supplemental), 103-105.
8. **Xie, F.**, and X. Cai, 2000: Spatial and Temporal Variation of Total Ozone Over East Asia and Europe: An Inter-Comparison, *J. Environ. Sci. Health*, A35 (10), 1923-1930.
9. **Xie, F.**, and X. Cai, 2000: Spatial and Temporal Variation of Total Ozone Over East-Asia, *Acta Scientiae Circumstantiae* (in Chinese with English Abstract), 20 (5), 513-517.

#### **SELECED PRESENTATIONS IN SYMPOSIAHS AND CONFERENCES**

1. **Xie, F.**, D. L. Wu, C. O. Ao, A. Mannucci: Observing the diurnal cycle with GPS/COSMIC occultations, 90th AMS Annual Meeting, Atlanta, Georgia, January 17-21, 2010.

2. **Xie, F.**, D. L. Wu, C. O. Ao, E. R. Kursinski, A. Mannucci and S. Syndergaard: Profiling Stratocumulus-topped Boundary Layers with GPS Radio Occultation, AGU Fall Meeting, San Francisco, California, December 14-18, 2009.
3. **Xie, F.**, D. L. Wu, C. O. Ao, A. Mannucci: Atmospheric diurnal cycle observed from GPS radio occultation soundings, Fourth FORMOSAT--3/COSMIC Data Users Workshop, Boulder, Colorado, October 27-29, 2009.
4. **Xie, F.**, D. L. Wu, C. O. Ao, A. Mannucci, B. Iijima and M. Pestana: Atmospheric diurnal and semi-diurnal variations observed from GPS radio occultation soundings, Global Navigation Satellite System Radio Occultation Workshop, Pasadena, California, April 7-9, 2009.
5. Teixeira, J., A. Mannucci, C. O. Ao, D. L. Wu and **F. Xie**, Science Requirements – Atmosphere or Future observations of cloudy boundary layers and the cloud/climate feedback, Global Navigation Satellite System Radio Occultation Workshop, Pasadena, California, April 7-9, 2009.
6. Haase, J. S., **F. Xie**, Muradyan, P., J. L. Garrison, T. Lulich, J. Voo, F.G. Nievinski, and K. Larson, 2009: New Atmospheric Observations from the Airborne GNSS Instrument System for Multistatic and Occultation Sensing (GISMOS), AGU Fall Meeting, San Francisco, California, December 15-19, 2008.
7. Haase J. S., **F. Xie**, J. L. Garrison, T. Lulich, and E. Calais: Moisture Profiling with Radio Occultation on Aircraft and Stratospheric Balloons, Centre Nationale d'Etudes Spatiales Meeting, Toulouse, France, June 26, 2008.
8. **Xie, F.**, J. S. Haase, T. Lulich, P. Muradyan, J. L. Garrison, S. Syndergaard and E. Calais: Profiling the Atmosphere with an Airborne GPS Receiver System, 88th AMS Annual Meeting, New Orleans, Louisiana, January 20-24, 2008.
9. Garrison, J. L., and M. Walker, J. S. Haase, T. Lulich, **F. Xie** and Coauthors, 2007: Development and testing of the GISMOS instrument, *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, Barcelona, Spain.
10. **Xie, F.**, J. S. Haase, S. Syndergaard, T. Lulich, P. Muradyan, J. L. Garrison and E. Calais: Error Estimation of Airborne GPS Radio Occultation Measurements: Simulation Analysis, Second Formosat-3/COSMIC Data Users Workshop, Boulder, Colorado, October 22-24 2007.
11. Kursinski, E. R., **F. Xie** and C. O. Ao: Issues Regarding GPS RO-Derived Tropospheric Humidity, First Formosat-3/COSMIC Data Users Workshop, Boulder, Colorado, October 16-18, 2006.
12. **Xie, F.**: Characterizing the Earth's Atmosphere Using GPS Radio Occultation Measurements: Opportunities and Challenges, Department of Earth and Atmospheric Sciences Seminar (Invited), Purdue University, August 31, 2006.
13. **Xie, F.**, S. Syndergaard, E. R. Kursinski, C. O. Ao and B. M. Herman: An Approach for Retrieving Marine Boundary Layer Refractivity From GPS Occultation Data, AGU Fall Meeting, San Francisco, California, December 5-9, 2005
14. **Xie, F.**, S. Syndergaard, E. R. Kursinski and B. M. Herman: Reconstruction of the Marine Boundary Layer Refractivity in the Presence of Super-refraction (Poster), Second GPS Radio Occultation Data Users' Workshop, Lansdowne, Virginia, August 22-24, 2005.
15. **Xie, F.**, X. Cai and J. Chen: An Inter-Comparison of Spatial and Temporal Variation of Total Ozone over East Asia and Europe, the First National Conference on Environmental Simulation and Pollution Control, Beijing, China, November 4-5, 1999.

**INVITED PEER REVIEWER**

1. GPS Solutions
2. Advances in Space Research
3. IEEE Transactions on Geoscience and Remote Sensing (TGRS)
4. IEEE International Geoscience and Remote Sensing Symposium (IGARSS)
5. Remote Sensing
6. Radio Science
7. Appointed Graduate Faculty of Purdue University and serves as PhD committee member

**PROFESSIONAL MEMBERSHIP**

1. American Geophysical Union, Full Member, since 2004
2. American Meteorological Society, Full Member, since 2005
3. Sigma-Xi, The Scientific Research Society, Full Member, since 2009
4. Chinese-American Oceanic and Atmospheric Association, since 2009

**AWARDS**

1. Full Research Assistant Scholarship, University of Arizona, Tucson, Arizona, 2001-2006
2. GPSC Travel Scholarship, University of Arizona, 2005
3. Outstanding Student Award, Peking University, China, 2000
4. Honor Graduate Award, Lanzhou University, China, 1998